

CLAIMS

1. An automatic keypad lockout system, comprising:
a portable communication device having a keypad;
5 an accessory for receiving the portable communication device; and
a means for detecting insertion and removal of the portable
communication device into and out of the accessory so as to enable and disable
the keypad.
- 10 2. The automatic keypad lockout system wherein the means for detecting
is selected from one of magnetic, electrical, optical, and mechanical implementations.
3. The system of claim 2, wherein the magnetic implementation
comprises:
15 a magnetic reed switch within the device; and
a corresponding magnet within the accessory for opening and closing the
switch.
4. The system of claim 3, wherein the reed switch remains closed when
20 the portable communication device is outside of the accessory thereby enabling the
keypad; and
the magnetic field from the accessory magnet opens the switch when the
device is inserted into the accessory thereby disabling the keypad.

5. The system of claim 3, wherein the reed switch remains open when the portable communication device is outside of the accessory thereby enabling the keypad; and
- the magnetic field from the accessory magnet closes the switch when the
- 5 device is inserted into the accessory thereby disabling the keypad.

6. The system of claim 2, wherein the electrical implementation comprises:
- 10 contacts on the surface of the device; and
- corresponding contacts on the accessory, the corresponding contacts electrically short-circuit the contacts on the device when the device is inserted into the accessory to disable the keypad and open circuit the contacts on the device to enable the keypad when the device is removed from the accessory.

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7. The system of claim 6, wherein at least one contact on the device is pulled to a reference voltage when open-circuited and is coupled to ground when short-circuited.
- 20 8. The system of claim 6, wherein at least one contact on the device is pulled to ground when open-circuited and is coupled to a reference voltage when short-circuited.

9. The system of claim 2, wherein the optical implementation comprises:
an infrared light-emitting diode (IR LED) in the device;
an IR phototransistor in the device for receiving light from the LED;
5 the accessory disabling and enabling the reception of light based on the
position of the device.

10. The system of claim 9, wherein the optical implementation further
comprises:
10 a slot formed within the device between the IR LED and the IR
phototransistor;
a tab in the accessory, the tab for inserting and removing from the slot
of the device.

15 11. The system of claim 10, wherein:
the device turns the photodiode on periodically and monitors the
phototransistor to determine if the IR LED is detected;
when the device is out of the accessory, a periodic pulse of the LED is detected
by the phototransistor;
20 when the device is inserted into the accessory, the tab on the accessory inserts
into the slot on the device thereby blocking the path of light between the LED and
phototransistor, allowing the device to detect the presence of the accessory due to the
absence of a received light pulse at the phototransistor.

12. The system of claim 9, wherein the optical implementation further comprises:

an IR-transparent plastic lens mounted to the device for contacting the accessory;

5 the pulses of light from the LED reflecting from the accessory and being detected by the phototransistor when the device is inserted into its holster;

the pulse not reflecting when the device is separated from the accessory thereby disabling the reflections.

10 13. The system of claim 2, wherein the mechanical implementation comprises:

a mechanically-actuated switch on the device, the switch engaging and disengaging when the device is inserted into and removed from the accessory.

14. The system of claim 13, wherein the mechanically activated switch enables
15 and disables the keypad in response to the switch being engaged and disengaged.

15. The automatic keypad lockout system of claim 1, further comprising:

a unique ID stored in the accessory, the unique ID associated with a predetermined user configuration; and

20 the portable communication device reading the unique ID from the accessory and assuming the predetermined configuration associated with that ID.

16. The automatic keypad lockout system of claim 15, further comprising:
a plurality of reed switches embedded in the device; and
an array of magnets embedded in the accessory for aligning and mating with at
5 least one of the plurality of reed switches forming a predefined pattern corresponding
to the unique ID.

17. The automatic keypad lockout system of claim 15, further comprising:
at least one voltage divider circuit, at least one component of which is
10 embedded in the accessory, a value of the at least one component embedded in the
accessory determining the unique ID associated with the accessory; and
an analog-to-digital converter (ADC) for reading the voltage divider circuit to
determine the presence of the accessory and the unique ID associated with the
accessory.

15 18. The automatic keypad lockout system of claim 15, further comprising:
a plurality of infrared LED and phototransistor pairs embedded in the device
between at least one recessed slot;
at least one tab integral to the accessory to mate into the slots for blocking
20 light of at least one of the plurality of infrared LED/phototransistor pairs, the presence
and absence of tabs controlling the light and thereby encoding different ID numbers.

19. The automatic keypad lockout system of claim 18, wherein the plurality of infrared LEDs are pulsed periodically and the phototransistors are monitored for corresponding pulses, the presence and lack of pulses corresponding to bits used for decoding the unique ID of the accessory.

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20. The automatic keypad lockout system of claim 15, further comprising:

a plurality of mechanical switches at the device; and

an array of protrusions and recesses patterned on the accessory, the protrusions actuating corresponding mechanical switches on the device and the recesses having no
10 effect on the mechanical switches when the device is mated with the accessory, the array of protrusions and recesses patterned on the accessory encoding a particular ID to the device through the actuated mechanical switches.

21. The automatic keypad lockout system of claim 1, further comprising:

15 an alterable ID stored in the accessory; and

the portable communication device reading the alterable ID from the accessory and assuming predetermined personal settings associated with that alterable ID.

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22. An automatic keypad lockout system, comprising:

- a portable electronic device having a keypad;
- an accessory with which to couple the portable electronic device;
- 5 the portable electronic device disabling the keypad when coupled to the accessory and enabling the keypad when not coupled to the accessory;
- an ID stored in the accessory; and
- the portable electronic the device, when coupled to the accessory, reading the ID and assuming a predetermined configuration associated with that ID until the
- 10 portable communication device is coupled to another accessory containing a different ID.

23. The automatic keypad lockout system of claim 22, wherein the ID is an alterable ID.

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24. The automatic keypad lockout system of claim 23, wherein the portable electronic device, when coupled to the accessory, reads a current configuration of the alterable ID and assumes a predetermined personalized setting associated with that ID.

25. A communication system, comprising:
- a portable electronic device having a keypad;
 - a plurality of accessories with which to couple to the portable electronic device, a unique ID stored in each of the plurality of accessories;
 - 5 the portable electronic device disabling the keypad when coupled to any of the plurality of accessories and enabling the keypad when not coupled to any of the plurality of accessories;
 - and
 - the portable electronic the device, when coupled to the accessory, reading the
 - 10 unique ID and assuming the predetermined configuration associated with that ID.